Test Definition: CL_F

Chloride, Feces

Overview

Useful For

Workup of cases of chronic diarrhea

Evaluation of suspected chloridorrhea

Method Name

Indirect Ion-Selective Electrode (ISE) Potentiometry

NY State Available

Yes

Specimen

Specimen Type

Fecal

Ordering Guidance

This test is **only** clinically valid if performed on watery specimens. In the event a formed fecal specimen is submitted, the test will not be performed.

Specimen Required

Patient Preparation: No barium, laxatives, or enemas may be used for 96 hours prior to start of, or during, collection.
Supplies: Stool containers - 24, 48, 72 Hour Kit (T291)
Container/Tube: Stool container
Specimen Volume: 10 g
Collection Instructions: Collect a very liquid stool specimen.

Specimen Minimum Volume

5 g

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Fecal	Frozen (preferred)	14 days	
	Ambient	48 hours	
	Refrigerated	7 days	

Clinical & Interpretive

Clinical Information

The concentration of electrolytes in fecal water and their rate of excretion are dependent upon 3 factors:
-Normal daily dietary intake of electrolytes
-Passive transport from serum and other vascular spaces to equilibrate fecal osmotic pressure with vascular osmotic pressure
-Electrolyte transport into fecal water due to exogenous substances and rare toxins (eg, cholera toxin)

Fecal osmolality is normally in equilibrium with vascular osmolality, and sodium is the major effector of this equilibrium.(1) Fecal osmolality is normally 2 x (sodium + potassium) unless there are exogenous factors inducing a change in composition, such as the presence of other osmotic agents (magnesium sulfate, saccharides) or drugs inducing secretions, such as phenolphthalein or bisacodyl.

Chronic diarrhea with elevations in fecal chloride concentrations are caused by congenital chloridorrhea. This is a rare condition associated with a genetic defect in a protein responsible for transport of chloride ions across the mucosal membranes in the lower intestinal tract in exchange for bicarbonate ions. It plays an essential part in intestinal chloride absorption, therefore variants in this gene have been associated with congenital chloride diarrhea.(2.

Acquired chloridorrhea is a rare condition that has been described as causing profuse, chloride-rich diarrhea and a surprising contraction metabolic alkalosis rather than metabolic acidosis often associated with typical diarrhea. Contributors to acquired chloridorrhea include chronic intestinal inflammation and reduction of chloride/bicarbonate transporter expression in genetically susceptible persons post-bowel resection and ostomy placement. Acquired chloridorrhea is rare but may be an under-recognized condition in post-bowel resection patients.(3)

Reference Values

An interpretive report will be provided

Interpretation

Fecal chloride may be low (<20 mmol/L) in sodium sulfate-induced diarrhea.(4)

Markedly elevated fecal chloride concentration in infants (>60 mmol/L) and adults (>100 mmol/L) is associated with congenital and secondary chloridorrhea.(5)

Cautions

Falsely high chloride values have been reported from patients receiving perchlorate medication. This is due to an interference of perchlorate ions with chloride ion-selective electrode determination.

Clinical Reference

1. Steffer KJ, Santa Ana CA, Cole JA, Fordtran JS: The practical value of comprehensive stool analysis in detecting the cause of idiopathic chronic diarrhea. Gastroenterol Clin North Am 2012;41:539-560
2. Makela S, Kere J, Holmberg C, Hoglund P: SLC26A3 mutations in congenital chloride diarrhea. Hum Mutat. 2002 Dec;20(6):425-438. doi: 10.1002/humu.10139/
3. Ali OM, Shealy C, Saklayen M: Acute pre-renal failure: acquired chloride diarrhea after bowel resection. Clin Kidney J.

2012;5(4):356-358. doi: 10.1093/ckj/sfs082
4. Eherer AJ, Fordtran JS: Fecal osmotic gap and pH in experimental diarrhea of various causes. Gastroenterology. 1992;103:545-551
5. Casprary WF: Diarrhea associated with carbohydrate malabsorption. Clin Gastroenterol. 1986;15:631-655

Performance

Method Description
The Roche cobas c 501 analyzer makes use of the unique properties of certain membrane materials to develop an electrical potential (electromotive force: EMF) for the measurements of ions in solution. The electrode has a selective membrane in contact with both the test solution and internal filling solution. The internal filling solution contains the test ion at a fixed concentration. The membrane EMF is determined by the difference in concentration of the test ion in the test solution and the internal filling solution. The EMF develops according to the Nernst equation for a specific ion in solution.(Package insert: Roche ISE reagent. Roche Diagnostics; V14 02/2018)

PDF Report
No

Day(s) Performed
Monday, Thursday

Report Available
1 to 3 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

Test Definition: CL_F

Chloride, Feces

CPT Code Information

82438

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
CL_F	Chloride, F	15158-9

Result ID	Test Result Name	Result LOINC® Value
CL_F	Chloride, F	15158-9